

Listing of Claims.

Please amend the claims as shown below. This listing of claims will replace all prior versions and listings of the claims in this application.

1-34. Canceled.

35. (New) A composition comprising:

- (a) an RAR antagonist;
- (b) a pharmaceutically acceptable carrier; and
- (c) a chondrogenic stimulator,

wherein said composition induces chondrogenesis leading to cartilage formation or chondrogenesis leading to cartilage formation that further mediates formation of new bone tissue in a vertebrate.

36. (New) The composition as claimed in claim 35, wherein said chondrogenic stimulator is a protein selected from the group consisting of a bone morphogenetic protein (BMP), an osteogenic protein (OPS), a cytokine and combinations thereof.

37. (New) The composition as claimed in claim 36, wherein said BMP is selected from the group consisting of BMP-2, BMP-4 and BMP-5.

38. (New) The composition as claimed in claim 37, wherein said osteogenic protein is OP-1.

39. (New) The composition of claim 35, wherein the RAR antagonist is present in an amount capable of stimulating chondrogenesis.

40. (New) The composition of claim 35, wherein said composition is provided as a solution, suspension, gel, matrix, cream, gel, film, paste, capsule, pill, tablet or encapsulated within liposomes.

41. (New) The composition of claim 35, wherein said composition is administered via intra-articular injection.

42. (New) The composition of claim 35, wherein said composition is provided within a biodegradable implantable matrix.

43. (New) A method for inducing chondrogenesis leading to cartilage formation or chondrogenesis leading to cartilage formation that further mediates formation of new bone tissue in a vertebrate, said method comprising administering a therapeutically effective amount of an RAR antagonist and a pharmaceutically acceptable carrier to said vertebrate.

44. (New) The method of claim 43, wherein said administration is local or systemic.

45. (New) The method of claim 43, wherein said administration is *in vitro* or *in vivo*.

46. (New) The method of claim 43, wherein said RAR antagonist antagonizes one or more of RAR α , RAR β or RAR γ .

47. (New) The method of claim 46, wherein said RAR antagonist antagonizes RAR α .

48. (New) The method of claim 46, wherein said RAR antagonist antagonizes RAR β .

49. (New) The method of claim 46, wherein said RAR antagonist antagonizes RAR γ .

50. (New) The method of claim 43, wherein said method comprises treatment of arthritis, abnormal cartilage formation and cartilage defects.

51. (New) A morphogenic device for implantation in a vertebrate, the device comprising:

- (a) an implantable biocompatible carrier; and
- (b) an RAR antagonist dispersed within or on said carrier.

52. (New) The device according to claim 51, wherein said carrier comprises demineralized bone, protein-extracted bone, particulate bone, allogenic bone, xenogenic bone or combinations thereof.

53. (New) The device according to claim 51, wherein said carrier is selected from the group consisting of semi-permeable polymer matrices, hydroxyapatite, collagen, tricalcium phosphate and copolymers of glycolid, lactic and butyric acid.

54. (New) The device according to claim 51, wherein said device comprises a biodegradable sponge.

55. (New) A method for producing a chondrocyte from a chondroprogenitor mesenchymal cell comprising contacting said chondroprogenitor mesenchymal cell with an RAR antagonist agent *in vitro*.

56. (New) A method for promoting *in vivo* integration of an implantable prosthetic device, into a target tissue of a vertebrate, the method comprising:

- (a) providing on a surface of the prosthetic device a composition comprising RAR antagonist and a pharmaceutically acceptable carrier; and

(b) implanting the device in a vertebrate, at a site where the target tissue and surface of the prosthetic device are maintained at least partially in contact for a time sufficient for said composition to stimulate chondrogenesis to enhance tissue growth between the target tissue and the device.

57. (New) The method according to claim 56, wherein said target tissue is selected from the group consisting of cartilage, bone and combinations thereof.

58. (New) A method of treating a cartilage associated degenerative condition in a vertebrate comprising administering a pharmaceutical composition comprising an RAR antagonist.

59. (New) A method for promoting chondrogenesis at a site of skeletal surgery in a vertebrate, the method comprising delivering an RAR antagonist composition at the site of skeletal surgery wherein such delivery induces chondrogenesis leading to cartilage formation at said site or chondrogenesis leading to cartilage formation that further mediates formation of new bone tissue at said site.

60. (New) A method for repairing large segmental skeletal gaps and non-union fractures arising from trauma or surgery in vertebrates, the method comprising delivering an RAR antagonist composition at the site of the segmental skeletal gap or non-union fracture wherein such delivery promotes chondrogenesis leading to cartilage formation at said site or chondrogenesis leading to cartilage formation that further mediates formation of new bone tissue.

61. (New) A method for aiding the attachment of implantable prosthesis at cartilaginous sites and for maintaining the long term stability of the prostheses in vertebrates, the method comprising coating selected regions of an implantable prosthesis with a RAR antagonist composition and implanting the coated prosthesis into a cartilaginous site wherein such implantation promotes the formation of new cartilage tissue.

62. (New) A method of producing cartilage at a cartilage defect *in vivo*, said method comprising:

implanting into the defect a population of chondrogenic cells which have been cultured in the presence of a RAR antagonist.

63. (New) A method for treating degenerative joint disease characterized by cartilage degeneration, said method comprising:

delivering a therapeutically effective amount of RAR antagonist to the site of disease to stimulate chondrogenesis at said site of disease.

64. (New) The method according to claim 63, wherein said RAR antagonist is delivered by intra-articular injection.

65. (New) The method according to claim 63, wherein said disease is arthritis.